Project Update: August 2006

FutureGen – A Sequestration and Hydrogen Research Initiative

FutureGen will be the world's first zero emissions power plant that will produce electricity and hydrogen from coal while capturing and storing carbon dioxide. This ten-year effort integrates advanced coal gasification technology, hydrogen from coal, power generation, and carbon dioxide capture and geologic storage.

Goal

The primary goal for FutureGen is to validate the technical feasibility and the economic viability of zero emissions energy from coal and in the process gain broad acceptance of this concept as one solution for future energy and environmental security. The goal will be achieved through the development and/or integrated application of key cutting-edge technologies. The FutureGen project will be supported by the leading U.S. sources of technology and innovation: universities, national laboratories, and industry. The success of FutureGen will assure that coal, a low-cost, abundant, and geographically diverse energy resource, continues to globally supply exceptionally clean energy.

> "Technology offers great promise to significantly reduce greenhouse gas emissions, especially carbon capture, storage, and sequestration technologies."
>
> President George W. Bush
> Announcing the National Climate Change Technology Initiative

The FutureGen project will design, construct and operate a nominal 275 megawatt prototype plant that produces both electricity and hydrogen with zero emissions. The size of the plant is driven by the need for producing technically and commercially relevant data, including the requirement for producing one to two million metric tons per year of CO_2, to adequately validate the integrated operation of the gasification plant and the receiving geologic formation.

Approach

FutureGen is a public-private partnership involving the U.S. Department of Energy (DOE) and a broad, open Alliance of industrial coal producers and electric utilities, as well as state governments and international participants.

The Alliance

DOE signed a cooperative agreement with the FutureGen Industrial Alliance, Inc. to conduct the first phase of the FutureGen project. The FutureGen Industrial Alliance, Inc., formally organized as a Delaware 501(c)(3) non-profit corporation on July 27, 2005, with seven charter members. Since then, three additional companies joined the Alliance bringing the total to ten companies:

- American Electric Power
- Southern Company
- CONSOL Energy, Inc.
- Rio Tinto Energy America (RTEA)
- Peabody Energy

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- PPL Corporation
- BHP Billiton
- Foundation Coal Corp.
- China Huaneng Group
- Anglo American

The Alliance has an open membership policy to encourage the addition of other coal and utility companies, both domestic and international. The five U.S. coal company members (CONSOL, RTEA, Peabody, BHP Billiton, and Foundation Coal) of the Alliance produce over 40 percent of coal mined in the United States. They are geographically diverse with operations across the United States and resource diverse mining the major ranks and types of coal used in the U.S. utility sector. The charter utility members, American Electric Power and Southern Company, are the two largest electric utilities in the United States with over 15 percent of the U.S. coal-fueled generation. Their collective sales territory extends from the East Coast to Texas and from the Canadian border to the Gulf of Mexico. They utilize all the major ranks and types of coal mined in the U.S.

The China Huaneng Group, the largest China-based energy company primarily engaged in coal-fueled power generation, the United Kingdom's Anglo Coal, and the PPL Corporation recently joined the Alliance.

Current Activities

In July 2006, the FutureGen Alliance announced its short list of candidate sites for the FutureGen plant following an extensive technical review. Of the 12 competing sites in seven states, the Alliance concluded that four sites are best suited to host the FutureGen facility. They include: Mattoon, Illinois; Tuscola, Illinois; Heart of Brazos near Jewett, Texas; and Odessa, Texas.

These candidate sites will move forward to the next step of the selection process, which includes a comprehensive National Environmental Policy Act (NEPA) evaluation by DOE and more detailed site characterization. DOE's National Energy Technology Laboratory will conduct public scoping meetings near each of the four proposed FutureGen project sites to provide interested parties an opportunity to comment on the scope and content of an Environmental Impact Statement for the FutureGen power plant.

In parallel, power plant engineering will proceed. In the latter half of 2007, following the completion of DOE's NEPA review, the Alliance will select a final site and move toward construction. The plant is expected to be on-line around the 2012 timeframe.

International Participation

The Government of India signed a Framework Protocol agreement on April 3, 2006 to become the first foreign government to join the United States on the FutureGen project. On June 26, 2006, South Korea signed an agreement with the United States to join the FutureGen initiative. Discussions with other interested countries are ongoing.

For More Information

DOE FutureGen Web site: www.fossil.energy.gov/programs/powersystems/futuregen/

FutureGen Industrial Alliance Web site: www.futuregenalliance.org

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